



Letters

Readers rush to the defence of logical thinking, Windows XP and even spyware, but the humble Post Office doesn't get off so easily

DOES NOT COMPUTE

Last month we published a feature called 'Computing the Uncomputable', which included an example of an uncomputable problem, which we summarise here to help you follow the next letter. In the church of Santa Maria in Cosmedin in Rome, tourists flock to see a gnarled stone face. This is the *Bocca della Verità*, the Mouth of Truth. According to the legend, this sculpture is a universal oracle: it's able to tell whether any statement is true or false. You stand in front of the sculpture, put your hand in its open mouth and make a statement. If the statement is true, nothing happens. If it's false, the mouth closes, trapping your hand forever.

To prove this ancient 'computer' can't work, you simply have to consider what it would do if you put your hand in the mouth and said "I won't be able to remove my hand".



Mike Bedford's article last month, concerning intractable problems, was hugely entertaining and gave a good description of the subject. It probably raised a few hackles among clear-thinking folk too, and I'd like to pen a response on their behalf.

The problems start with the Mouth of Truth, which will close or open depending on whether a statement you make is true or false. When asked to judge the truth of a statement such as "you will close", all the mouth has to do is close. Then, after a suitable period for rueful reflection on behalf of the presumptive, open again. In this way it has both fulfilled its remit and delivered a salutary lesson.

Even if the supplicant had said "forever, you will close", the onus is still on the supplicant to remain in position forever to win the case. I happen to know that the stories about the mouth are all absolutely true. It's just that the mouth is very forgiving. And no-one has yet dared to put their hand in and risk a real untruth.

More seriously, there is a problem whenever logicians assume that 'forever', 'infinity' and so on are symbols as is a chair or, indeed, a computer. To propose that "clever engineering" could result in a PC that achieved infinite clock speed in two ticks makes achievements such as anti-gravity, time travel and perpetual motion pale into insignificance.

The so-named halting problem fails to convince. We saw the problem very simply but not, I would say, clearly. Let us assume that all programs halt. In that case, to prove there is a program that does not halt, we would actually have to find one and run it forever.

The description of Alan Turing's original theory is similarly over-kind. The key here is the statement, "...first reading from the tape a definition of the Turing Machine that it was going to emulate". However, before you reach this stage you would have needed to define the Turing Machine and I pose the question, are all Turing Machines definable? Does a Turing Machine that relies on an infinite tape count as defined? I don't know.

And Intel's RNG may solve a different problem admirably but it does not prove that a random number generator is uncomputable. One imagines that the answer to this problem – if there were one – would be to find a suitable quine: a program that reproduces itself. See <http://neil.fraser.name/software/counter> for more information for quines.

There is a whole world of difference between logical proof (which I think we can see was not on show) and mathematical proof, such as $2+2=4$. We were told that Yuri Matiyasevich has a mathematical proof of an uncomputable problem but, not knowing what it is (I am not a mathematician) and not having it presented in your excellent article, I on behalf of the readership will happily take this on trust.

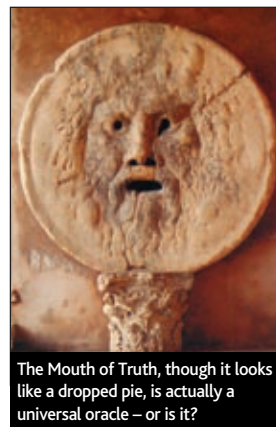
Martin Cross

ⓧ We won't argue with your convincing-sounding points because, frankly, we'd need to sit in a darkened room for some time just to get our heads around the logical implications. However, Yuri Matiyasevich's work was on the purely mathematical problem of Diophantine equations, where you must solve the equation by substituting only integers for the variables x, y and so on. You can find details of his work at

<http://mathworld.wolfram.com/diophantineequation.html>. Basically, and we use the word advisedly, Matiyasevich proved the impossibility of obtaining a general solution to Diophantine equations by showing that there is a polynomial P in n, m , and a number of other variables x, y and so on having the property that n is the $(2m)$ th Fibonacci number if and only if there exist integers x, y and so on such that $P(n, m, x, y, z, \dots) = 0$. Please don't ask us what that means.

Regarding the issue of unfeasibly fast computers, it's important to note that we're not suggesting you'll be able to pick

up a Hypercomputer, capable of an infinite clock speed, from Asda. According to theoretical computer scientist Apostolo Syropoulos (who actually exists, despite his job description), "the scenario is feasible when the... computer enters the outer event horizon of a slowly rotating black hole." Mike has yet to return from potholing down the black hole he used to research this feature, so we can't reach him for comment.



The Mouth of Truth, though it looks like a dropped pie, is actually a universal oracle – or is it?

PAPER TRAILER

I read with interest your article on ID theft in the last issue. On several occasions you say that the Royal Mail redirection service should be used when moving house. This is not always possible.

When, after my divorce, it was suggested that I move, I bought a mobile home on a permanent site. I lived there for over 10 years until, after a couple of people died and no-one noticed for several days, I thought it was time I moved on. This I did and filled in the Post Office redirection form and paid the extortionate fee. I'm sure it was free when I was much younger.

After several weeks, the Post Office wrote to say it did not redirect from caravan parks, and eventually refunded my money. Although I

WRITE IN – AND WIN!

Adobe has kindly agreed to give a bundle of its popular Photoshop Elements and Premiere Elements software to this month's star letter writer, furnishing Martin with a powerful graphics program familiar to professional graphic designers, as well as the top-notch video-editing package Premiere Elements 2.0. Photoshop Elements 4.0 lets you edit and enhance your digital photos easily and effectively, while Premiere Elements makes it simple to edit your own home movies like a pro.



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notified most people, I'm sure there are some I forgot, so they will still have my old address, and eventually will have had mail returned as 'gone away'.

Also, as it was just before Christmas (a couple of years ago), I did not receive many cards. Had the usual senders died, gone away or just not bothered that year? The moral of this story is don't move, don't live on a caravan site or notify everyone of your new address, even those you have forgotten about for years.

Bob Nesbitt

☞ A useful, cautionary tale, Bob. Organised readers who keep an up-to-date contacts database could run a mailmerge and send out address change cards automatically, either by regular mail or email. It would certainly be cheaper than the £14.55 it costs for three months of redirection services.

We hope you've finally managed to inform everyone who needs to know of your new address, but we know you forgot one very important contact – us. Please drop us a line so we can send you a *Shopper* mug. And if you do manage to maintain a healthy electronic address book, you might find Joe's tip below of some help.

CLEAR BLUE SPIES

I'd just like to express my views on adware and spyware, as it seems that all I hear nowadays is screams of anger about the latest tracking cookie that has found its way on to someone's computer. After looking in detail at current software, in my opinion responsible adware and most 'spyware' is not a big issue.

I am referring to software that displays a few pop-ups now and then to help give something back to the software developers. You can't just get something for nothing, and a few targeted ads based on what you look at on the net seems a great deal to me. As for spyware, a little toolbar that spots keywords in your browsing and reports back that you go on computer websites cannot be compared to keystroke loggers or diallers.

This is no different to market research done on the streets, just with a different method and some great software with it. Even dialler

software can be a fair deal in my opinion if it is openly and adequately explained to the end user, does not change your default settings and connects only when you want it to.

I am, of course, fully opposed to the more serious forms of adware and spyware that are difficult to remove and have more serious effects, such as keystroke loggers and the notorious WinFixer adware. But I've created software before, and I don't think it's right to complain at small developers for bundling harmless adware with their software.

I think that the problem of adware is exaggerated beyond belief and it's not always such a bad option.

Peter Gould

☞ It's true that there is a lot of unnecessary fuss made about tracking cookies, and anti-spyware programs play up to this by screaming alerts when they discover 5,000 harmless cookies on your disk. We would also agree that software that uses advertising to support its development is not, by definition, a bad thing.

In practice it's not very popular with users, though. The free version of the popular Eudora email client has featured embedded adverts for some years now, although we no longer use it for that reason. The Opera web browser also had embedded advert banners, although last year the company abandoned them, saying that "removing the ad banner and licensing fee will encourage many new users".

The sad truth is that such legitimate adware is rare compared with invasive software that



Most anti-spyware software complains about unimportant cookies as well as serious problems

ADDRESS BOOK TIP

I liked your 'Advanced Email Backup' in last month's *Helpfile*, where you suggested setting up a batch file. I had previously been using a short cut to access the same data, but the batch file is a much better idea. Having said that, you forgot to include the Address Book. This ought to be on the same path but, of course, it isn't. Another batch file would do the trick, but why not do it all in one? Here is my version:

```
cd "C:\Documents and Settings\Owner1\Local Settings\Application Data\
Identities\{BE098XVX-D4F3-4Z99-A6E1CED987A1WTE9}\Microsoft\Outlook Express"
xcopy . "D:\Email Backup"
pause
cd "C:\Documents and Settings\Owner1\Application Data\Microsoft\Address Book"
xcopy . "D:\Email Backup\Address Book Backup"
pause
```

Joe Gentile

☞ Backing up virtually hidden data files is a problem. In fact, although your tip is a useful extension, a better overall solution is to make full backups using disk imaging so you can recover your system should something happen to your PC. Luckily, we look at this subject in depth in this month's *Advanced Windows* on page 241.

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107,956 (average monthly sales Jul-Dec 2004)



A DENNIS PUBLICATION

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hammers a PC's performance and bothers the user, locking them out of their Internet Explorer settings and interrupting them with pop-up adverts. Harmless spyware is a contradiction in terms. By definition it installs itself without you knowing about it. A legitimate marketing tool designed to track consensual users is not spyware.

Essentially, technology can be put to good and bad purposes. Diallers, behaviour trackers and advertising are not inherently evil. Nor are guns, knives or dirty raincoats. In real life, however, you usually don't want to encounter them.

DITCHING XP

The answer to last month's letter by Niall Duffy, *Why ditch XP?* (Letters, *Shopper* February 2006) informed us that possibly the best feature of the new version of Windows is Universal Access Protection. If this works (not before time), it will be a great step forward for Windows and may make it almost as safe as Linux was 10 years ago. *D Black*

Having experienced every Windows iteration since Mr Gates first developed the ideas behind CP/M, I found Niall Duffy's critique of Vista more believable than your defence of Universal Access Protection (UAP). If UAP is the best this package has to offer, then I for one intend to give it a very wide berth indeed.

I have witnessed too many disappointments not to be suspicious of anything that claims some kind of intelligence when dealing with a problem. If UAP somehow automates the mechanisms behind setting access privileges then it will not be long before someone somewhere develops the perfect way to exploit this. Since we are talking about the most used operating system in the world, the period of time over which UAP will provide protection could be a great deal shorter than consumers have the right to expect.

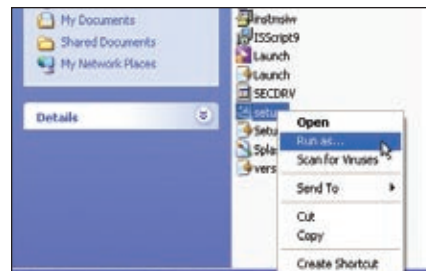
I prefer the more cynical view that Vista is Microsoft's best effort to get in bed with the media giants and make lots of money from digital rights management. I for one hope that 2006 is a watershed for the PC, with more people switching to Linux than ever before.

David Mayhead

I would like to reply to the answer you gave to the question 'Why Ditch XP?' Surely you can enjoy similar levels of protection as offered by UAP simply by habitually using XP's limited user accounts? As a limited user, you can run and install programs as long as you know the administrator password. The only downside I can see is if the PC wants to configure anything after a restart. To get around this, simply log in once, as the administrator, and let the PC configure everything. Then log out again. Do the same when installing new hardware.

To run a program as a specific user, just right-click on the program you want to install or run and select Run As from the menu. When the dialog box pops up click Run, then select a user account that you want to use to run this program. Make sure it is an administrator account. Enter the password, then click OK. The program will now run as if you have logged in as an administrator.

Stephen Matthews



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UAP will probably be used much more widely than the Run As feature available in Windows XP

As we write this, Microsoft has released a new beta of Vista to its community of testers, who work under the Community Technology Preview programme. Based on previous Microsoft statements, we believe this release marks a significant milestone. Improved performance and reliability have been mentioned, as well as the equally predictable security buzzwords.

Windows Defender, Microsoft's new anti-spyware program, is included, and the interface has been improved so you don't need to be an expert to use it. Microsoft has also strengthened the firewall, which can now check what's attempting to leave your system as well as what's trying to come in from the internet.

While UAP may not be the most revolutionary idea, it's still a good one and will probably be used much more widely than the Run As feature that's available in Windows XP. The prevalence of spyware is proof enough that too few people operate this way. But before we dismiss Vista completely as a pointless upgrade, bear in mind that it's not even due to be released for months yet. Who knows what features Microsoft might add (or remove) between now and then?



Who knows what improvements to security Microsoft will make to the final version of Vista?